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Improving Quality Lessons From the Department of Veterans Affairs

Stephan D. Fihn, MD, MPH

In 1967, the first multicenter randomized controlled trial of treatment for hypertension was published by the newly created Veterans Administration Cooperative Studies Program, demonstrating the remarkable effectiveness of drug treatment for what would now be considered severe hypertension (average diastolic pressure 115 to 129 mm Hg).¹ During the ensuing 4 decades, there have been remarkable strides made to improve care for this very common condition, including development of effective new drugs and acceptance of lower blood pressure thresholds and targets. It is more than fitting that the Department of Veterans Affairs (VA) should remain a leading contributor to these efforts.

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Despite these advances, however, efforts to improve awareness of high blood pressure and achievement of treatment goals remains suboptimal from a national perspective, particularly among blacks and other ethnic minorities.² Increasingly it is being acknowledged that additional progress depends far more on improving systems of care than further advances in pharmacology. Because they are frequently characterized by defined populations, substantial administrative resources, infrastructure such as information systems, an emphasis on primary care, and coordinated benefits, large integrated health systems have been most successful in implementing improvements of care for chronic conditions. In this issue of *Circulation: Cardiovascular Quality and Outcomes*, Choma et al³ describe the results of efforts to improve the quality of monitoring and treatment of hypertension in 1 of the 21 regional networks (Veterans Integrated Service Networks [VISNs]) that comprise the VA health care system.

To be appreciated, the results reported by Choma et al must be viewed in the larger context of the overarching Veterans Health Administration (VHA). The largest integrated health-care system in the United States, VHA has more than 200 000 employees (including 17 000 physicians) and 7.8 million

enrollees who make 60 million outpatient visits annually. These patients are cared for in 153 hospitals and more than 900 hospital, community-based, and independent clinics. Nearly half of these patients are older than 65, and they have an average of 3 additional nonmental health diagnoses and 1 additional mental health diagnosis compared with persons of similar age in the general population. They are also poorer; 70% have an annual household income below \$26 000 and 40% below \$16 000. The prevalence of chronic conditions is high: obesity (body mass index ≥ 30), 28%; diabetes, 22%; hypercholesterolemia, 51%; hypertension, 62%; and cardiovascular disease, 29%.⁴

Despite these adverse demographic and clinical characteristics, the VA system has been documented to provide care that meets or exceeds that provided in the private sector, often by a wide margin, based on commonly applied performance metrics, rigorous research, and VA's own quality improvement data (Table).^{5,6} It should be noted that the latter are based on intensive manual review of the medical records of randomly selected patients rather than on automated data from computerized databases.

Yet this impressive performance is a relatively recent development. In the 1970s and 1980s, VA was regarded as an inefficient system of poor quality. In 1977, the National Academy of Sciences recommended to Congress that care for veterans be "mainstreamed" into the private health care system. The public perception of VA was typified by the movie *Born on the Fourth of July*, which depicted VA facilities as antiquated and staff as inept and apathetic. Faced with the prospect of extinction, beginning in 1994 VA undertook an ambitious, and by all accounts successful, reorganization. This transformation has been described in varying detail by several authors but was characterized by key elements that included strong central leadership, realignment of budgeting allocation to reward enlarging the population of patients receiving care, a dramatic shift from inpatient to outpatient care emphasizing primary care, aggressive implementation of an electronic health record, and early adoption of a robust performance measurement system.^{5,6} The latter system included detailed reporting of performance data at the network and facility level and annual contracts with senior executives, a portion of whose compensation was dependent on meeting explicit targets.

The overall effect of these changes on system-level performance was astonishing. In 1996, scores on most of the measures related to prevention and risk factor reduction were in the range of 30% to 40%. By 2003 they had risen to levels approximating those displayed in the Table.⁹ More impressive still, the number of patients enrolled in VA increased by two thirds from ≈ 4.5 million in 1999 to 7.5 million in 2004.

The opinions expressed in this article are not necessarily those of the editors or of the American Heart Association.

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Table. VA Outpatient Performance Measures Compared With Comparable Measures From Other Systems of Care*

Indicator	VA 2008	VA 2007	Commercial 2007†	Medicare 2007†	Medicaid 2007†
Breast cancer screening	87%	86%	69%	67%	50%
Cervical cancer screening	92%	91%	82%	N/A	65%
Colorectal cancer screening	79%	78%	56%	50%	N/A
LDL cholesterol <100 mg/dl after AMI, PTCA, or CABG	66%	62%	59%	56%	38%
Hemoglobin A1c ≤9.0% in diabetic patients	84%	84%	71%	71%	52%
LDL cholesterol <100 in diabetic patients	68%	64%	44%	47%	31%
Retinal examination in diabetic patients	86%	85%	55%	63%	50%
Microalbuminuria screening in diabetic patients	93%	91%	81%	86%	74%
Blood pressure <140/90 in patients with diabetes	78%‡	77%‡	64%	59%	56%
Blood pressure <140/90 in patients with hypertension	75%	76%	62%	58%	53%
Smoking cessation counseling	89%	83%	76%	N/A	70%
Medications offered to smokers	84%	N/A	51%	N/A	39%
Smokers referred for smoking cessation	92%	N/A	48%	N/A	39%
Influenza vaccination (age ≥65 or high risk)	84%	72%	49%	72%	N/A
Pneumococcal vaccination (all age groups at risk)	94%	90%	N/A	67%	N/A

*Source of data: VA Office of Quality and Performance, 2008. VA comparison data are obtained by abstracting medical record data using similar methodologies to matched HEDIS methodologies. Because of population differences and methodology variations not all HEDIS measures are comparable to VA measures, therefore this is not a comprehensive list of indicators; however, this comparison does contain those indicators that are closely aligned in content and methodology. N/A indicates not available; LDL, low-density lipoprotein; AMI, acute myocardial infarction; PTCA, percutaneous transluminal coronary angioplasty; CABG, coronary artery bypass graft.

†HEDIS data were obtained from the 2008 "State of Health Care Quality Report" (www.ncqa.org).

‡Measure is ≤140/90.

All the while, the VA budget remained relatively constant after adjusting for inflation.

Despite these dramatic accomplishments, not all VISNs and facilities have exhibited the same degree of improvement, and performance on all measures has not achieved optimal levels. Underperforming networks and facilities typically undertake efforts to improve. As described by Choma et al, performance in their network lagged behind national targets, prompting initiation of quality improvement efforts. They took advantage of a network-wide data warehouse, similar to what some other VISNs had constructed, to take a population-based approach. Although they do not report designing their intervention based on any overarching theoretical model, they used a set of interventions that have been used in various settings over the past 2 to 3 decades, including standardization of blood pressure measurement, patient and provider education, and audit and feedback. As discussed by the authors, individually, these maneuvers tend, on average, to exert only modest effects but when combined into multifaceted interventions may be more effective. Self-monitoring of blood pressure has a variable effect on systolic blood pressure, whereas diastolic pressure is lowered an average of 2.0 mm Hg.¹⁰ Physician education appears to have similar effects, whereas patient education has a variable effect. Audit and feedback at the provider level appears to have small to modest effects that vary according to the intensity of the feedback and the level of baseline performance.¹¹ Thus the modest effects observed in the present study appear quite consistent with results reported in the literature.

Although Choma et al documented improvements in control of blood pressure and use of hydrochlorothiazide, their

results still lagged behind average performance throughout VA. While the proportion of patients with blood pressure less than 140/90 in their network rose from 61.5% to 65.7%, during the same time-frame it rose from 73% to 75% in VHA nationally. Similarly, whereas Choma et al report that the proportion of eligible patients prescribed a thiazide rose from 18.5% before the intervention to 21.6% afterward, similar national figures were 21% and 23%, respectively. Overall, the improvements they observed were similar in magnitude to those occurring nationally within VA, although the absolute performance in their network remained substantially lower.

Despite the fact that the results of their quality improvement activities were modest, the report by Choma et al is nonetheless laudable. As mentioned, VA patients in the southern United States have greater comorbidity and worse health status on average.¹² Moreover, the method of evaluation used demonstrated that the improvements observed were most likely related to interventions rather than simply reflecting secular trends. Although the authors used relatively low-intensity simple interventions, they were applied across a large complex system of care as opposed to a single clinic or hospital. The lack of a doctrinaire approach to quality improvement is consistent with recent suggestions that much of what is labeled as "new" methodology or theory for quality improvement often merely represents repackaging of standard approaches.¹³ Walshe posits that most QI methodologies share 4 basic characteristics: (1) application of a cyclic process involving diagnostics, data collection, intervention, and evaluation; (2) process deconstruction using various (often similar) analytic tools; (3) involvement of executive leadership; and (4)

engagement of front-line staff. Using that framework, Choma et al adopted what appears to have been an industry standard approach to improving blood pressure control in their network. Moreover, they applied a population-based perspective and conducted their efforts over a sustained period of time.

From a broader perspective, the transformation of VA teaches us that even the largest and most dysfunctional systems can undergo dramatic change for the better. This should be a salutary tonic to all currently contemplating the enormous challenges that will be required to reform our existing national health care system. On the other hand, one of the lessons conveyed by Choma et al is that achieving improvements in a large complicated health system that is already functioning at a respectable level is difficult, and that even with sensible and concerted exertions, progress often is measured in small though meaningful increments.

Disclosures

Dr Fihn is a full-time employee of the Department of Veterans Affairs.

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